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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,076	01/23/2002	Louis Robert Litwin JR.	PU020003	7482

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EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/055,076	LITWIN ET AL.	
	Examiner	Art Unit	
	Stephen M. Baker	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10 and 15 is/are rejected.
- 7) ☒ Claim(s) 6-9, 11-14 and 16-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>012302,061103</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 1: in lines 29, 30 and 31 (second occurrence), "code" apparently should be "codes". On page 2: in line 3, "cyclical" apparently should be "cyclic"; in line 12, "receive a codeword and" apparently should be deleted; in line 12, "the codeword" apparently should be "the received codeword data"; in line 17, "received codeword" apparently should be "received codeword data"; in line 22, "a codeword" apparently should be "received codeword data"; in line 23 and line 24 (two occurrences), "codeword" apparently should be "received codeword data"; in line 27, "determine" apparently should be deleted; in line 28, "codeword" apparently should be "received codeword data are determined". On page 5: in lines 8-9, "devices, including but not limited to tape" apparently should be "devices including, but not limited to, tape". On page 9: in line 10, "Since" apparently should be "Since a".

Appropriate correction is required.

Claim Objections

2. Claims 1-4, 6, 10, 11 and 15 are objected to because of the following informalities:

In claim 1: in line 1, "a codeword" apparently should be "data representing a codeword" or the like, as a "codeword" is customarily used to refer to a valid member of the code; in lines 3 and 6, "codeword" apparently should be "codeword data" or the like.

In claim 2: in lines 1 and 3, "codeword" apparently should be "codeword data" or the like.

In claim 3: in lines 2 and 3, "codeword" apparently should be "codeword data" or the like.

In claim 4: in lines 2 and 4, "codeword" apparently should be "codeword data" or the like.

In claim 6: in line 2, "codeword" apparently should be "codeword data" or the like.

In claim 10: in line 1, "a codeword" apparently should be "data representing a codeword" or the like, as a "codeword" is customarily used to refer to a valid member of the code; in lines 3, 4, 5, 8 (two occurrences) and 11, "codeword" apparently should be "codeword data" or the like.

In claim 11: in line 2, "codeword" apparently should be "codeword data" or the like.

In claim 15: in line 1, "a codeword" apparently should be "data representing a codeword" or the like, as a "codeword" is customarily used to refer to a valid member of the code; in lines 2, 4, 5 and 8 (two occurrences), "codeword" apparently should be "codeword data" or the like.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9 and 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1: in line 10, "is performed" apparently should be "operates" or the like, as a "means" is not a step in a method; in line 12, "are performed" apparently should be "operate" or the like; in line 7, "an error location" apparently should be "error locations", to agree with line 11; in line 8, "an error magnitude" apparently should be "error magnitudes", to agree with line 12.

In claims 5-8: in line 2, "is accomplished" apparently should be "operates" or the like.

In claim 9: in line 3, "are accomplished" apparently should be "operate" or the like.

In claim 15: in line 11, "is performed" apparently should be "operates" or the like; in line 13, "is concurrently performed" apparently should be "operate concurrently" or the like.

In claim 16: in lines 2-3, "is accomplished" apparently should be "operates" or the like.

In claims 17 and 18: in line 2, "is accomplished" apparently should be "operates" or the like.

In claim 19: in line 2, "are accomplished" apparently should be "operate" or the like.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,099,482 to Cameron (hereafter "Cameron").

Cameron discloses a pipelined Reed-Solomon code decoder with detection of uncorrectable codeword data conditions. With reference to Fig. 3, Cameron shows a "means for calculating a syndrome" (33), a "means for generating an error polynomial from said syndrome" (140A, 140B, 118), a "means for determining an error location from said error polynomial (145), and a "means for calculating an error magnitude from said error polynomial" (144) (col. 7, lines 3-59). A power register (44) contains the degree of the error locator polynomial $\Lambda(t)$, which is also the number of detected symbol errors, as generated during the processing performed by the Euclid stack module. Consequently, the power register (44) is a "means for determining a value corresponding to the number of data errors within said codeword (data) from said error polynomial". The

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“means for determining an error location from said error polynomial (145) and the “means for calculating an error magnitude from said error polynomial” (144) are components of a polynomial solver (36). The “means for generating an error polynomial from said syndrome” (140A, 140B, 118) are components of a Euclid stack module. The polynomial solver (36) operates on the data of one codeword while the Euclid stack module operates on data of the preceding codeword (col. 7, lines 62-64). Accordingly, Cameron’s decoder operates such that “said means for determining said value corresponding to the number of data errors ... (operates) on data corresponding to a first codeword while said means for determining said error locations and said means for determining said error magnitudes ... (operate) on data corresponding to a second codeword”.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron.

Although one condition mentioned by Cameron for detecting whether received codeword data is uncorrectable is that the degree of the error locator polynomial, “ $\Lambda(t)$ ”, should not be greater than a threshold, “ t ”, that is the number of correctable symbol

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errors (col. 3, line 41), Cameron does not show logic for checking for such a condition, or how the decoder operates in response to such an uncorrectable codeword data condition.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Cameron's decoder with logic for determining whether the degree of the error locator polynomial, " $\Lambda(t)$ ", is greater than the correctable error number threshold, " t ". Such an implementation would have been obvious because one condition mentioned by Cameron for detecting whether received codeword data is uncorrectable is that the degree of the error locator polynomial, " $\Lambda(t)$ ", should not be greater than a threshold, " t ".

Official Notice is given that the advantages of the conventional practice of operating an error correction code decoder such that uncorrectable codeword data is passed through the decoder unchanged, without correction, such as supporting error concealment or other error mitigating processes, were well known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Cameron's decoder with logic for passing codeword data with uncorrectable errors through the decoder unchanged, without correction, thereby supporting error concealment or other error mitigating processes. Such an implementation would have been obvious because the advantages of the conventional practice of operating an error correction code decoder such that uncorrectable codeword data is passed through the decoder without correction, such as supporting error concealment or other error mitigation, were already well known.

Allowable Subject Matter

9. Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 6-9 and 16-19 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

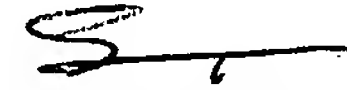
The references cited disclose operating an error correction code decoder such that uncorrectable codeword data is passed through the decoder unchanged, without correction.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703) 305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb